

Appl. No. : 09/997,895
Filed : November 30, 2001

REMARKS

Claims 11, 12 and 15 have been amended by this paper and Claim 13 has been cancelled. Claims 1-10, 28, 29 and 36-57 have been withdrawn from further consideration, as being drawn to a non-elected invention. Hence, by this paper, Claims 11, 12, 14-27 and 30-35 are presented for further examination.

The specific changes to the specification and the amended claims are shown in the above section entitled IN THE CLAIMS. On this set of pages, the insertions are underlined while the ~~deletions are stricken through~~.

In the Office Action mailed June 30, 2004, the Examiner makes reference to a telephone conversation between counsel for Applicant and the Examiner on June 14, 2004, wherein a provisional election was made, with traverse, in response to an election/restriction requirement. During that conversation, counsel for Applicant elected, with traverse, to prosecute the invention of Group II, Claims 11-27 and 30-35. Applicant hereby affirms this election.

In the Office Action mailed June 30, 2004, Claims 11-27 and 30-35 were rejected under 35 U.S.C. § 102(e) as being anticipated by Kellogg et al. (U.S. Patent No. 6,063,589, hereinafter "Kellogg").

Among other things, the Examiner states that "Kellogg discloses an optical bio-disc that comprises a substrate (col. 8, lines 6-38) having encoded information being readable by a disc drive assembly to control rotation of the disc (col. 8, line 37 – col. 9, line 20)." Applicant notes that Kellogg, at col. 8, lines 41-44, states: "[T]he optical pits provide means for encoding instrument control programming, user interface information, graphics and sound specific to the application and driver configuration." This is the only reference to anything that may in some way relate to Applicant's "encoded information" that Applicant has been able to identify in Kellogg. Applicant has also been unable to identify any further information clarifying what an "instrument" would be, and thus what "instrument control programming" would entail. Kellogg does disclose numerous components that are included in "platforms" for which "instrument control programming" may find application, such as microfluidic components, heating elements, temperature sensing elements, capillary valves, sacrificial valves and a rotor design for transmitting electrical signals to and from the microsystem's platforms. (Col. 7, lines 32-35). However, there is no teaching as to which, if any, of these identified components may be the subject of the "instrument control programming."

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Furthermore, other items which could relate to such programming are described at col. 8, lines 61 – col. 9, line 1, which indicates:

Electrical layers can be incorporated in discs requiring electric circuits, such as electrophoresis applications and electrically-controlled valves. Control devices, such as integrated circuits, laser diodes, photo diodes, and resistive networks that can form selective heating areas or flexible logic structures can be incorporated into appropriately wired recesses, either by direct fabrication or modular installation onto the disk.

Further, at col. 9, lines 15-20, Kellogg states:

Components optimally comprising the platforms of the invention or a controlling device in combination therewith include detection chambers, reservoirs, valving mechanisms, detectors, sensors, temperature control elements, filters, mixing elements, and control systems.

The Kellogg reference describes some structures for heater elements, and uses therefore, such as at col. 53, line 1 – col. 56, line 63. However, there is no disclosure provided as to the means by which control is provided for these heater structures, or any of the other components identified above. In particular, there is no reference as to any use of the “instrument control programming, user interface information, . . .”. (Col. 7, lines 42-43). In describing operation of the disclosed subject matter, Kellogg teaches the rotation of the platform at several speeds, such as a first rotational speed f_1 (col. 12, line 21), and a second rotational speed f_2 (col. 12, line 42). However, Applicant has been unable to identify any information in Kellogg which indicates the means by which the rotation speeds are obtained.

In view of the above, Applicant respectfully submits that there is neither any teaching nor any suggestion in Kellogg of a “substrate having encoded information associated therewith, the encoded information being located on the bio-disc and configured so as to be readable by a disc drive assembly to control rotation of the disc,” (See, e.g., Claim 1; emphasis added) (Claims 12 and 15 contain similar limitations) nor is there any teaching or suggestion in Kellogg of an assay zone configured so that when a particulate suspension including a particulate matter component and a liquid component is deposited into the antechamber, “rotating the substrate in response to the encoded information delivers a metered amount of the liquid component to the assay zone.” (See, e.g., Claim 11; emphasis added) (Claims 12 and 15 contain similar limitations). A mere indication that the “optical pits provide means for encoding instrument control programming, user interface information, . . .” at col. 8, lines 41-43, of Kellogg does not rise to the level of

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disclosing an optical bio-disc or a fluidic circuit in a substrate of a bio-disc as defined in Applicant's Claims 11, 12 and 15. There is no indication in Kellogg as to how the encoded information to which Kellogg refers is used, and there certainly is no teaching or suggestion that such information is readable by a drive assembly to control rotation of the disc. In the absence of such teaching or suggestion, Applicant respectfully submits that Claims 11, 12 and 15 define subject matter which is patentable over Kellogg.

In the Office Action of June 30, 2004, the Examiner also indicated that Kellogg discloses "an assay zone in fluid communication with the metering chamber so that when a sample is deposited in the antechamber and a rotation is applied, a metered amount of liquid component is moved to the assay zone (col. 17, lines 5-21). However, Applicant has been unable to identify any teaching relevant to this subject matter at the indicated location in Kellogg. Applicant does note that Kellogg teaches at col. 7, lines 8-27:

Generally, the details of the cross-sectional shape are not important, but the dependence on cross-sectional dimension results in microchannels of dimension less than 500 μm exhibit significant capillary pressure. By varying the intersection shapes, materials and cross-sectional areas of the components of the microsystem's platform of the invention, "valves" are fashioned that require the application of a particular pressure on the fluid to induce fluid flow. This pressure is applied in the disc of the invention by rotation of the disc (which varies with the square of the rotational frequency, with the radial position and with the extent of the fluid in the radial direction). By varying capillary valves cross-sectional dimensions as well as the position and extent along the radial direction of the fluid handling components of the microsystem platforms of the invention, capillary valves are formed to release fluid flow in a rotation-dependent manner, using rotation rates of from 100 rpm to several thousand rpm. This arrangement allows complex, multi-step fluid processes to be carried out using a pre-determined, monotonic increase in rotational rate.

Although the disclosure referred to above describes the process by which fluid may be moved through the microchannels, Applicant submits that there is no teaching nor any suggestion as to a structure or process which "delivers a metered amount of the liquid component to the assay zone while an excess amount of the liquid component is delivered to the waste chamber." (See, e.g., Claims 11, 12 and 15) (emphasis added). There is no discussion as to the metering of the flow, or of the control of amounts of fluid to be moved. The reference is, instead, directed to the idea that fluid movement is controlled by capillary pressure, which produces "valves" which require the application of a particular pressure on the fluid to induce fluid flow. The application

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of the pressure is accomplished by rotation of the disc. These teachings fall far short of those necessary to provide a basis for a finding that the limitations of Claims 11, 12 and 15, discussed above, would have been made obvious by such teachings. Accordingly, Applicant respectfully submits that independent Claims 11, 12 and 15 each define subject matter that is patentable over the Kellogg reference.

In view of the above, Applicant respectfully submits that independent Claims 11, 12 and 15, as presented herein, define subject matter that is patentable over the art of record. Furthermore, since Claims 14, 16-27 and 30-35 each depend from one of independent Claims 11, 12 and 15, these dependent claims also define subject matter that is patentable over the art of record. Accordingly, Applicant respectfully submits that Claims 11, 12, 14-27 and 30-35 are now in condition for immediate allowance and such prompt allowance of the same is respectfully requested.

CONCLUSION

The Applicant has endeavored to address all of the concerns of the Examiner in view of the recent Office Action directed to the above-identified application. Accordingly, amendments to the claims, the reasons therefor and arguments in support of the patentability of the pending claims are presented above.

Any claim amendments which are not specifically discussed in the above remarks are not made for patentability purposes, and it is believed that the claims would satisfy the statutory requirements for patentability without the entry of such amendments. Rather, these amendments have only been made to increase claim readability, to improve grammar, and to reduce the time and effort required of those in the art to clearly understand the scope of the claim language. Any new claims presented above are of course intended to avoid the prior art, but are not intended as replacements or substitutes for any cancelled claims. They are simply additional specific statements of inventive concepts described in the application as originally filed.

In light of the above amendments and remarks, reconsideration and withdrawal of the outstanding rejections is specifically requested. If the Examiner finds any remaining impediment to the prompt allowance of these claims that could be clarified with a telephone conference, the Examiner is respectfully requested to initiate the same with the undersigned.

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Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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